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Docket 86583PAL
Customer No. 01333

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Joseph F. Bringley, et al

INKJET MEDIA WITH SMALL
AND LARGE SHELLED
PARTICLES


Serial No. 10/622,229

Filed July 18, 2003

Group Art Unit: 1774

Examiner: Pamela Schwartz

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Robin DePoint

June 12, 2006
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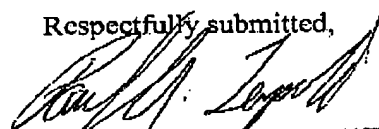
Sir:

APPEAL BRIEF TRANSMITTAL

Enclosed herewith is Appellants' Appeal Brief for the above-identified application.

The Commissioner is hereby authorized to charge the Appeal Brief filing fee to Eastman Kodak Company Deposit Account 05-0225. A duplicate copy of this letter is enclosed.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

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APPEAL BRIEF PURSUANT TO 37 C.F.R. 41.37 and 35 U.S.C. 134

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APPELLANT'S BRIEF ON APPEAL

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 1, 3-6, 10, 12-21, and 25 which was contained in the Office Action mailed November 7, 2005.

A timely Notice of Appeal was filed March 10, 2006.

Real Party In Interest

As indicated above in the caption of the Brief, Eastman Kodak Company is the real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Appendix I provides a clean, double spaced copy of the claims on appeal.

Status Of Amendments

The Amendment After Final mailed February 7, 2006 was entered in the Advisory Action mailed February 28, 2006.

Summary of Claimed Subject Matter

The invention relates to an image receiving element designed for inkjet use comprising a mixture of large and small particles wherein the small particles have a median particle size of between 80 and 140 nm and wherein the large particles have a median particle size of between 200 and 300nm. The large particles and the small particles have a ratio of from 65:35 to 35:65. Both the large particles and the small particles are shelled with the material providing image fade resistance selected from the group consisting of hydrolyzable organosilanes, aluminasilicate polymers and metal oxyhydroxy complexes. The inkjet receiving element has a porosity of greater than 40% and a 60° gloss of greater than 25.

It has been found that this combination of properties results in an inkjet receiver that has a very good combination of rapid absorption of ink and a glossy surface and resistance to fade.

Grounds of Rejection to be Reviewed on Appeal

The following issues are presented for review by the Board of Patent Appeals and Interferences:

1. Whether claims 1, 3-6, 10, and 12-21 are unpatentable under 35 USC 103 over Darsillo et al. (6,365,264).
2. Whether claims 1, 3-6, 12-21, and 25 are unpatentable over Darsillo et al. (6,365,264) in view of Bi et al. (2004/0197498) and Alexander et al. (3,007,878).

Arguments

In paragraph 2 of the Final Rejection claims 1, 3-6, and, and 12-21 stand rejected under 35 USC 103 as being unpatentable over Darsillo et al. (264) for reasons of record and for reasons set forth below.

In paragraph 3 of the Final Rejection claims 1, 3-6, and, 12-21, and 25 stand rejected under 35 USC 103 as being unpatentable over Darsillo et al. (264) in view of Bi et al. (498) and Alexander et al. (878) for reasons of record and for reasons set forth below.

Reproduced below are the first rejection of claims over Darsillo et al. under 35 USC 103 in paragraph 4 of the action of June 12, 2005. Also reproduced below is paragraph 4 of the office action of May 26, 2005 where the first rejection over Darsillo et al. (264) in view of Bi et al. (498) and Alexander (878) appear. After these paragraphs there is produced paragraph 4 of the Final Rejection which states the "reasons set forth below" referenced in the Final Rejection.

Office Action dated January 12, 2005

4. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darsillo et al. (6,365,264). The reference discloses a recording medium having a glossy coating thereon with first and second groups of particles (see the abstract). The first particles may be pyrogenic silica and may be treated to make it cationic with aluminum chlorohydrate (see col. 4 line 59 to col. 5, line 10). This treatment should create an aluminosilicate shell on the particles. The ratio of the groups of particles to each other overlaps with those instantly claimed (see the abstract). The second group of particles may be colloidal silica and may be surface treated (see col. 8, line 51 to col. 9, line 9). The make the particles cationic, treatment with alumina, forming an aluminosilicate shell, would have been obvious to one of ordinary skill in the art since it is well known that alumina is cationic and will cause the surface of the silica to become cationic if so treated. The first group of particles has a primary particle size of less than about 100 nm with aggregates of from about 100 to about 500 nm. The second set of particles are less than about 50% of the mean diameter of these aggregates (see the abstract). The reference is concerned with gloss but does not measure gloss in the terms of claims 11 and 12. However, based upon the discussion of gloss in col. 3 of the reference, it would have been obvious to one of ordinary skill in the art to control and determine gloss of the medium in order to achieve desired visual results. Due to the small particle range set forth at col. 5, lines 11-42, the first group of particles would inherently meet the standard deviation values of claims 13 and 14. Furthermore, the reference suggests that both sets of particles can have diameters that are all substantially the same (see col. 6, lines 51-63 and col. 8, lines 14-28). The larger particles may be pyrogenic or fumed silica. The smaller particles may be colloidal silica. The colloidal silica set forth in Example one is spherical. Pyrogenic silica is usually formed into chains that would be of irregular shape. Therefore, these aspects would have been obvious to one of ordinary skill in the art. The medium of the reference would be inherently porous (see col. 7, lines 6-9) although the reference does not appear to set forth the porosity of the layer. Based upon the awareness of the importance of this property by the applied art, it would have been obvious to one of ordinary skill in the art to optimize the porosity of the layer in order to obtain desired ink absorption capacity.

Office Action dated May 26, 2005

4. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darsillo et al. (6,365,264) for reasons of record

and further in view of Bi et al. (2004/0197498) and Alexander et al. (3,007,878) for reasons given below. Bi et al. discloses treating silica particles to make them cationic for inclusion in an ink jet recording sheet [0027-0031]. The treatment may be with a hydroxyl-containing polyvalent metal salt or a cationic resin. The reference discloses that such a polyvalent metal salt with disclosed in Alexander et al. (3,007,878) and incorporates this reference. Figure 1 of Alexander et al. shows the surface of silica that has been complexed with a metal oxyhydroxy material. This complex appears consistent with applicants' claims 24 and 25. Based upon the preference of the primary reference for cationic treatment of silica, the disclosure of Bi et al. that the teachings of Alexander et al. are relevant to treat silica to render it cationic for inclusion of ink jet recording media, and the teachings of Alexander to formation of what is an aluminum oxyhydroxy complex, it would have been obvious to one of ordinary skill in the art to treat the silica of the primary reference as set forth in Bi et al. and Alexander et al. to render the silica cationic.

Final Rejection dated November 7, 2005

4. Applicant's arguments filed August 29, 2005 have been fully considered but they are not persuasive. The rejection under 35 USC 102 has been overcome. With respect to the rejection over Darsillo et al., applicants' arguments are not persuasive for the following reasons. Applicants argue that the reference does not disclose the porosity and the gloss as recited by amended claim 1. This is not persuasive because while not disclosing gloss in the terms set forth by applicants, the reference does disclose the importance of gloss and measures the 75° specular gloss in lieu of the 60° gloss recited by applicants. This is a difference in measurement technique. The reference has identified the property, its desirability, and how to measure the property. Thus it would have been obvious to one of ordinary skill in the art to optimize this property in accordance with the reference. With respect to porosity, the reference also discusses this property and the importance of this property. Measurement of the property is discussed at col. 5, line 60 to col. 6, line 22. Once again, from this disclosure, it would have been obvious to one of ordinary skill in the art to determine and control porosity of the layers in order to allow the desired degree of ink absorption. Next, applicants argue that the reference does not disclose core shell particles. Applicants argue that in order for a particle to be core shell, the surface has to be chemically modified with a distinct composition from the core. This is clearly described by the reference at col. 5, lines 1-10. The reference specifically uses the term "surface modification" to describe this process. The importance of properties such as porosity, gloss and fade resistance are all well known to one of ordinary skill in the art. Contrary to applicants' arguments, when the reference states that "it is sometimes preferred" it is stating a preference

for cationic particles. The reference discloses both inherently cationic particles and particles that become so through surface modification with a distinct composition, i.e. core/shell particles.

With respect to image fade resistance, contrary to applicants' assertions, there is no definition in the specification that limits the term to issues of light-fastness and oxidative resistance. In addition, inclusion of cationic materials in ink receptive layers does reduce image fade. Cationic agents fix anionic dyes by adsorption making the dyes less likely to react with undesirable oxidative species. This makes the material fade resistant as well as preventing bleeding in the medium. Since applicants do not have a limiting definition of image fade in their specification, they must rely on the more generic use of the term known in the art.

The examiner has also reconsidered Table 1 in view of applicants' claim amendments. The results are not persuasive because there are too many variables changed in these showings. Not only is there a difference in whether or not the particles have a shell, but adding the shell also changes the particle diameters of both the small particles and the large particles. Changes in results cannot be attributed to the shell because two other values are varied at the same time, i.e. the size of the small particles and size of the large particles. Of course, by changing the particle sizes, the particles will be packed differently and changes in absorption and gloss can no longer be attributed to whether or not the particles have a shell. Therefore, applicants' statement that "for the inventive examples wherein the particles are shelled with a material providing image fade resistance, surprisingly, gloss increases upon introduction of larger particles, and concurrent, high-porosity, high-gloss and low-fade are achieved only over the inventive region, having a surprisingly high-fraction of large particles" has not been supported by showings. In order for the showings to demonstrate the results that applicants intend for them to demonstrate, the shelled and unshelled particles used in the examples should be the same size.

Next, applicants argue that the gloss of the reference is "poor" unless the medium is calendared. It is unclear why applicants consider the levels of gloss disclosed by the reference to be poor. Applicants claim gloss levels as low as 15, however, the reference level of 17.2 is considered by applicants to be poor. Clarification is requested concerning this argument.

Argument over Darsillo

Darsillo et al. discloses a recording medium with two different particles, however. Darsillo et al. does not demonstrate the advantages of porosity, gloss and image fade resistance as achieved by the use of the particle sizes, ratio of particles and selection of shelling material as set forth in the claims. It is respectfully urged that Darsillo et al. does not indicate a preference for

cationically shelled particles but merely states that "[i]t is sometimes preferred that that cationic particles be included in glossy coating." Furthermore, none of the examples disclosed in Darsillo et al. include surface treated, or cationically shelled particles of any kind. Examples 14-16 of the reference include pyrogenic alumina, which is a cationic particle, but it is not shelled. As discussed above there is an important distinction between a cationic particle and a shelled particle. A cationic particle is simply a particle with a positive charge. However, a shelled particle is a particle in which the surface of the particle has been chemically modified with a composition of matter that is distinctly different from that of the core, or interior of the particle. Therefore, it is respectfully urged that the particles as disclosed in Darsillo et al. are not disclosed as surface chemically modified as in the present invention. Further, the image-receiving element of Darsillo does not disclose the selected ratio of small and large particles, the median particle size of the small and large particles as selected, the 40% porosity or the 60° gloss of greater than 25.

Applicants would further like to clarify the term image fade resistance as disclosed in the instant invention. As the Examiner has correctly pointed out it is well known that cationic materials will fix anionic dyes, making them less subject to bleeding and "fading." The proper term for this property is bleeding or water-fastness. Image fade resistance in our case is distinct in that it refers to light-fastness and oxidative resistance of the image in dry conditions. This is defined in the background of the instant invention on page 2 lines 8-10, and further on page 4 lines 23-28. The materials defined in the instant invention are selected from a unique set of materials that have been shown to provide light-fastness and oxidation resistance also known as image fade resistance.

Applicants respectfully direct the Board of Appeals to the data of Table 1. The examples C1-C7 are essentially directly comparable to those of Darsillo et al. and essentially reproduce the reference result (a trade off between porosity and gloss with no fade resistance). The instant invention demonstrates surprising results in light of Darsillo et al. When particles of the specified size and ratio of sizes have a surface-modification providing image fade resistance are used to construct an image recording medium, highly porous and highly glossy

coatings are obtained at relatively high fractions of large particles over a limited range. This is demonstrated in Table 1 of the specification at page 18.

Table 1

<u>Example</u>	<u>Percent Small Particles</u>	<u>Percent Large Particles</u>	<u>Shell</u>	<u>Percent Porosity</u>	<u>60° Gloss (%)</u>	<u>Percent Magenta Fade</u>	<u>Percent Cyan Fade</u>
C-1	100	0	None	42	40	40	11
C-2	89	11	None	45	31	48	40
C-3	77	23	None	48	29	26	50
C-4	66	34	None	52	12	28	50
C-5	55	45	None	55	6	19	47
C-6	44	56	None	60	5	17	60
C-7	32	68	None	65	9	12	54
C-8	100	0	Yes	33	4	3	0
C-9	89	11	Yes	37	7	0	0
I-1	77	23	Yes	42	16	0	6
I-2	66	34	Yes	39	29	1	18
I-3	55	45	Yes	48	29	2	15
I-4	44	56	Yes	52	33	4	25
I-5	32	68	Yes	58	31	4	11

For the comparison examples, the general trends taught in the art are observed, porosity increases and gloss decreases as the percentage of large particles increases, see C-1 through C-7. However, for the inventive examples wherein the selected size particles in the proper ratio are shelled with a material providing image fade resistance, surprisingly, gloss increases upon introduction of larger particles, and concurrent, high-porosity, high-gloss and low-fade are achieved only over the inventive region, having a surprisingly high-fraction of large particles.

In Darsillo et al. glossy coatings are obtained only after calendering the coating, see Table 3 column 17. Calendering is a method applying pressure to the coating surface to make it smoother and hence to improve gloss. Calendering can be both expensive and time consuming. Compare the results for the comparison example 3A with that of example 3 in Darsillo et al., the gloss is poor

for both, unless calendering is used, and exhibits the usual trend of improved gloss for introduction of smaller particles.

Therefore, it is respectfully urged that the present invention as amended is non-obvious since Darsillo et al. does not teach concurrently achieving high-porosity, high-gloss and image fade resistance by use of shelled particles as disclosed in the present invention as amended. Furthermore, image fade resistance would not have been an inherent property of Darsillo et al. because the reference did not teach the use of the image fade resistant materials as claimed in the instant invention applied to particles of a selected size and size ratio. Therefore, it is respectfully requested that this rejection be reconsidered and withdrawn.

Argument over Darsillo in view of Bi and Alexander

The Examiner has rejected claims 1, 3-6, 12-21 and 25 under 35 U.S.C. § 103 as being unpatentable over Darsillo et al. in view of Bi et al. (2004/0197498) and further in view of Alexander et al. (3,007,878). The Examiner indicates that Bi et al. discloses treating silica particles to make them cationic for inclusion in an ink jet recording sheet. The Examiner further indicates that Alexander et al. discloses the surface of silica that is complexed with a metal oxyhydroxy material. The Examiner states that it would have been obvious to one of ordinary skill in the art to treat the silica of Darsillo et al. as set forth in Bi et al. and Alexander et al. to render the silica cationic. This rejection is respectfully traversed.

As discussed above Darsillo et al. discloses a recording medium with two different particles, however, fails to teach particles, such as specified in the claims, shelled with hydrolyzable organosilanes, aluminasilicate polymers or metal oxyhydroxy complexes, and further fails to teach porosity and gloss and particle size and particle ratio as claimed in the present invention. Bi et al. discloses a two-layer coating in which each layer is composed of cationic silica, but fails to teach shelled particles as disclosed in the present invention. Alexander et al. discloses coating the surface of silica with an oxygen compound of a polyvalent metal added as basic salt. However, none of these references alone or

in combination teach or suggest an image-receiving element containing two different sized particles of specific size and ratio, shelled with hydrolyzable organosilanes, aluminasilicate polymers or metal oxyhydroxy complexes, and wherein the element has both porosity and gloss as claimed in the present invention. Therefore, it is respectfully requested that this rejection be reconsidered and withdrawn.

Response to Examiners comments in Section 4 of the Final Office Action.

On page 2 of the Final Office Action, the Examiner states that the applicants arguments concerning gloss are not persuasive as the measurement of gloss at 75 degrees instead of the applicants' 60 degrees is a matter of measurement technique and that it would be obvious to one of ordinary skill to optimize the property. It is respectfully urged that there is a significant difference between gloss measurements at 60 degrees and 75 degrees. The appellant has provided two publications discussing gloss measurement. These publications are "The Measurement of Gloss" by A. H. Pfund (October 1929), and "Gloss as an Aspect of the Measurement of Appearance" by Wei Ji et al., J. Opt. Soc. Am. January 2006 Vol. 23, No. 1, pp. 22-33). The Board of Appeal's attention is directed to page 24 of Pfund for a discussion of how the measurement is done and to page 23 of Ji et al for a discussion regarding Figure 1 where it is shown how 60 degree gloss and 75 degree gloss measurements differ for a semi-glossy article. It is noted that the appellant has raised the gloss limit of claim 1 to be even further from the range of Darsillo et al. It is urged that while gloss was known in the art, it was not obvious from the art to create the claimed article by selection of materials and characteristics as instantly disclosed and claimed.

At the top of page 3 of the Final Office Action, the Examiner states that it would be obvious to control the porosity as claimed. However the appellants' porosity is not shown or suggested by the reference. The Darsillo reference, at col. 5 and 6 as pointed out by the Examiner, discloses porosity of the particles and not the layer of the image-receiving member. In any case, the applicants' invention is directed to the formation of a sheet with a good balance of stability, gloss, and porosity by selection of particular particle size, size ratio, and

shell material. The knowledge that such properties existed does not make obvious the invention article as there is no teaching to suggest or disclose an article as now claimed.

At page 4, the Examiner states that the Examples are not convincing as the size change after shelling would affect the results such that the difference in size before and after shelling means that the comparisons are not convincing. However it is urged that the shell is so thin that the particle size after shelling is substantially the same as before shelling. The Examiner's attention is directed to pages 13 and 14 of the instant specification where the shell is shown to be less than 10% of the diameter. It is respectfully urged that this small size difference is not enough to make the Examples not convincing.

In the paragraph at the bottom of page 4 of the Final Office Action, the Examiner states that it is unclear why the applicants consider the levels of gloss of the reference to be poor. The Examiner points out that the reference has gloss of 17 while the Applicant has gloss as low as 15. As discussed above, the 75 degree gloss of 17 would be less than the 60 degree gloss of 15 if measured at 60 degrees. Nevertheless, the Appellant has now limited the claims to 60 degree gloss of greater than 25, which is not anywhere close to the gloss in the reference. Darsillo must calendar to obtain that high a gloss, whereas the instant claimed invention allows formation of an image-receiving layer with higher gloss than the prior art material.

Darsillo et al. discloses a recording medium with two different particles, however. Darsillo et al. does not demonstrate the advantages of porosity, gloss and image fade resistance as achieved by the use of the particle sizes, ratio of particles and selection of shelling material as set forth in the claims. It is respectfully urged that Darsillo et al. does not indicate a reasoned preference for cationically shelled particles but merely states that "[i]t is sometimes preferred that that cationic particles be included in glossy coating." Furthermore, none of the examples disclosed in Darsillo et al. include surface treated, or cationically shelled particles of any kind. Examples 14-16 of the reference include pyrogenic alumina, which is a cationic particle, but it is not shelled. As discussed above there is an important distinction between a cationic particle and a shelled particle.

A cationic particle is simply a particle with a positive charge. However, a shelled particle is a particle in which the surface of the particle has been chemically modified with a composition of matter that is distinctly different from that of the core, or interior of the particle. Therefore, it is respectfully urged that the particles as disclosed in Darsillo et al. have not been chemically modified as in the present invention.

In response to the Amendment After Final of February 28, 2006, the Examiner states as follows:

The request for reconsideration has been considered but does NOT place the application in condition for allowance because: the rejections of record are still considered to be proper. Some of the reasons why the rejections are still proper are given in the final rejection. With respect to image fade, there is no discussion in the specification of this being related or only relevant to dry conditions. The specification teaches that image fade is prevented by a material that provides resistance to oxidation and light. The materials at the top of col. 5 of the reference fulfill this function and fit within broad groups recited by claim 1. Applicant's comparative examples are not representative of the closest examples of the reference. These would be the examples employing cationic particles. It would have been expected that the image fade results are improved through use of cationically charged particles, whether the charge is provided by a cationic shell or a solid particle. There is nothing to support that improvement in results due to the core shell nature of the particles rather than the cationic nature of the particles. With respect to gloss and porosity, the recognition in the prior art of these properties and of how to control the properties would have made their optimization obvious to one of ordinary skill in the art. Applicants allege that the gloss values of the reference are different than those instantly claimed, but do not demonstrate this to be true. The examiner is aware that the reference measures gloss differently than do applicants, but it would have been obvious to one of ordinary skill in the art to optimize the property of gloss based on the disclosure of the reference. Finally, applicants allege, but have not demonstrated, that less than a 10% size difference attributed to the shell would have little or no impact on results. To overcome the lack of constancy of the particle sizes in their examples, applicants would have to demonstrate what they have only alleged, i.e. that the change in particle size due to the shell is not significant enough to impact properties of gloss, porosity and image fade.

In response to the Amendment After Final, the Examiner has again stated that the examples are not convincing as to an advantage set forth by each of the limitations of the claim. However, it is respectfully urged that further proof is not necessary in this application as a prima facie rejection has not been made. Claim 1 sets forth the following 7 differences between the references to Darsillo et al. and the other art. These differences are selections from broader ranges suggested in the art or entirely new limitations not considered in the art.

1. The large and small particles are shelled.
2. The shell material is selected from hydrolyzable organosilanes, aluminasilicate polymers and metal oxyhydroxy complexes.
3. The large and small particles have a ratio of between 65:35 to 35:65.
4. The small particles have a medium-sized of between 80 and 140 nm.
5. Large particles have a median particle size of between 200 and 300 nm.
6. The image-receiving element has a porosity of greater than about 40%.
7. The image-receiving element has a 60° gloss of greater than 25

The Examiner has provided no teaching or suggestion in the art to select the limited ranges of any one item as set forth above much less a teaching or suggestion to make an image receiving element that has all these 7 limitations. By the selections to form the element as claimed an element of high-gloss (without calendaring) and high absorption is obtained. A comparison with any one of these limitations and the art would not be significant or dispositive of the obviousness and patentability invention as the combination of features of the claimed image receiving element is the invention. The entirety of the invention must be examined not independent pieces. The Examiner must show teachings that the entire invention as claimed is obvious. Even if the selection of one or two features independently is obvious does not make the whole claim1 obvious, unless a teaching to make the entire claim obvious is found by the Examiner. As pointed out, the appellant's Examples are convincing as to the gloss and absorption properties of the claimed element. These properties are not present in the example comparisons and have not been demonstrated by the Examiner as disclosed or

suggested in any combination of the cited art. Even less has it been shown that the properties are reached by the applicant's claimed seven feature invention. It is respectfully urged that the Examiner wishes to examine each element of the claim separately rather than the entire claim 1 which is the claimed invention. The invention has been narrowly claimed to result in a preferred element not disclosed or suggested by the art. Therefore, it is respectfully requested that the rejections be reversed.

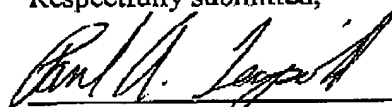
Summary

It is respectfully requested that the rejections be reversed as there is no teaching of suggestion in the art that makes obvious the entire article as claimed. The Examiner has set forth no suggestions that would lead one to the claimed invention with seven features never combined, prior to this invention, to reach an improved image-receiving article.

Conclusion

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of claims 1, 3-6, 10, 12-21, and 25.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

Appendix I - Claims on Appeal

1. An image-receiving element comprising a mixture of large and small particles wherein said large and said small particles are shelled with a material providing image fade resistance selected from the group consisting of hydrolyzable organosilanes, aluminasilicate polymers and metal oxyhydroxy complexes, and wherein said large particles and said small particles have a ratio of from 65:35 to 35:65, wherein said small particles have a median particle size of between 80 and 140 nm, wherein said large particles have a median particle size of between 200 and 300 nm, wherein said image-receiving element has a porosity of greater than about 40%, and wherein said image-receiving element has a 60° gloss of greater than 25.

10. The image-receiving element of claim 1 wherein said element has a porosity from about 50 to 70%.

13. The image-receiving element of claim 1 wherein said small particles have a particle size distribution with a standard deviation of less than 50 nm.

14. The image-receiving element of claim 1 wherein said small particles have a particle size distribution with a standard deviation of between 1 and 25 nm.

15. The image-receiving element of claim 1 wherein said large particles have a particle size distribution with a standard deviation of less than 150 nm.

16. The image-receiving element of claim 1 wherein said large particles have a particle size distribution with a standard deviation of between 10 and 100 nm.

17. The image-receiving element of claim 1 wherein said large particles comprise fumed silica.

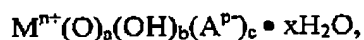
18. The image-receiving element of claim 1 wherein said large particles have an irregular shape.

19. The image-receiving element of claim 1 wherein said small particles comprise colloidal silica.

20. The image-receiving element of claim 1 wherein said small particles are generally spherical.

21. The image-receiving element of claim 1 wherein said small particles are generally symmetrical.

25. The image-receiving material of claim 1 wherein said metal oxyhydroxy complexes comprise



wherein

M is at least one metal ion;

n is 3 or 4;

A is an organic or inorganic ion;

p is 1, 2 or 3; and

x is equal to or greater than 0;

with the proviso that when n is 3, then a, b and c each comprise a rational number as follows: $0 < a < 1.5$; $0 < b < 3$; and $0 \leq pc < 3$, so that the charge of the M^{3+} metal ion is balanced;

and when n is 4, then a, b and c each comprise a rational number as follows: $0 < a < 2$; $0 < b < 4$; and $0 \leq pc < 4$, so that the charge of the M^{4+} metal ion is balanced.

Appendix II - Evidence

"The Measurement of Gloss" by A. H. Pfund (October 1929)

"Gloss as an Aspect of the Measurement of Appearance" by Wei Ji et al., J. Opt. Soc. Am. January 2006 Vol. 23, No. 1, pp. 22-33).

Appendix III – Related Proceedings

None